

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION**

PAPST LICENSING GMBH & CO. §
KG, §
§
Plaintiff, § **CASE NO. 6:15-cv-01095**
vs. § **[LEAD CASE]**
§
§
APPLE INC., et al., §
§
Defendants. §

MEMORANDUM OPINION AND ORDER

This Memorandum Opinion construes disputed claim terms in U.S. Patent Nos. 6,470,399 (“the ’399 Patent”), 6,895,449 (“the ’449 Patent”), 8,504,746 (“the ’746 Patent”), 8,966,144 (“the ’144 Patent”), and 9,189,437 (“the ’437 Patent”) (collectively, the “patents-in-suit”) asserted by Plaintiff Papst Licensing GmbH & Co., KG (“Plaintiff”) against Defendants Apple Inc. (“Apple”), Lenovo (United States) Inc. (“Lenovo”), Motorola Mobility LLC (“Motorola”), LG Electronics, Inc., LG Electronics U.S.A., Inc., LG Electronics MobileComm U.S.A., Inc., (“LG”), Huawei Technologies Co., Ltd., Huawei Technologies USA, Inc. (“Huawei”), Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. (“Samsung”), and ZTE (USA) Inc. (“ZTE”) (collectively “Defendants”). On January 5, 2017, the parties presented oral arguments on the disputed claim terms at a *Markman* hearing. For the reasons stated below, the Court **ADOPTS** the following constructions.¹

¹ For ease of reference, the Court’s constructions are reproduced in Appendix A.

TABLE OF CONTENTS

BACKGROUND	3
APPLICABLE LAW	3
Section 112(b): Indefiniteness	5
Section 112(f): Means-Plus-Function Limitations.....	6
AGREED TERMS	7
CLAIM CONSTRUCTION OF DISPUTED TERMS	7
1. “connecting device” Terms.....	7
2. “first command interpreter” and “second command interpreter”	13
3. “multi-purpose interface”.....	17
4. “specific driver for the multi-purpose interface”	19
5. “parameter” and “signal” Terms.....	20
6. “customary” Terms	25
7. “automatic” Terms	29
8. “data transmit/receive device”	34
9. “simulating a virtual file system to the host”	37
10. “user-loaded” Terms	39
11. “input/output (i/o) port”	43
12. “analog signal acquisition channel[s],” “acquisition channels,” and “analog acquisition channel”	44
APPENDIX A: COLLECTED CONSTRUCTIONS	47

BACKGROUND

“The five asserted patents share a common specification.” Dkt. No. 185 at 1 n.1. “The Patents generally relate to a unique method for achieving high data transfer rates for data acquisition systems (e.g., still pictures, videos, voice recordings) to a general-purpose computer, without requiring an end user to purchase, install, and/or run specialized software for each system.” Dkt. No. 175 at 1 (citing ’399 Patent at 4:23–27).

Terms in the ’399 and ’449 Patents have been construed in a Multi-District Litigation proceeding: *In re Papst Licensing GmbH & Co. KG Patent Litig.*, MDL No. 1880, Misc. Action No. 07-493 (D.D.C.) (“*Papst MDL*”). Claim constructions reached in the *Papst MDL* have been addressed by the Federal Circuit. See *In re Papst Licensing Digital Camera Patent Litig.*, 778 F.3d 1255, 1261–70 (Fed. Cir. 2015) (“*Papst Opinion*”).

APPLICABLE LAW

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). The Court examines a patent’s intrinsic evidence to define the patented invention’s scope. *Id.* at 1313–14; *Bell Atl. Network Servs., Inc. v. Covad Commc’n Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). Intrinsic evidence includes the claims, the rest of the specification and the prosecution history. *Phillips*, 415 F.3d at 1312–13; *Bell Atl. Network Servs.*, 262 F.3d at 1267. The Court gives claim terms their ordinary and customary meaning as understood by one of ordinary skill in the art at the time of the invention. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

Claim language guides the Court’s construction of claim terms. *Phillips*, 415 F.3d at 1314. “[T]he context in which a term is used in the asserted claim can be highly instructive.” *Id.* Other claims, asserted and unasserted, can provide additional instruction because “terms are normally used consistently throughout the patent.” *Id.* Differences among claims, such as additional limitations in dependent claims, can provide further guidance. *Id.*

“[C]laims ‘must be read in view of the specification, of which they are a part.’” *Id.* (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995)). “[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); see *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). In the specification, a patentee may define his own terms, give a claim term a different meaning than it would otherwise possess, or disclaim or disavow some claim scope. *Phillips*, 415 F.3d at 1316. Although the Court generally presumes terms possess their ordinary meaning, this presumption can be overcome by statements of clear disclaimer. See *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343–44 (Fed. Cir. 2001). This presumption does not arise when the patentee acts as his own lexicographer. See *Irdeto Access, Inc. v. EchoStar Satellite Corp.*, 383 F.3d 1295, 1301 (Fed. Cir. 2004).

The specification may also resolve ambiguous claim terms “where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.” *Teleflex, Inc.*, 299 F.3d at 1325. For example, “[a] claim interpretation that excludes a preferred embodiment from the scope of the claim ‘is rarely, if ever, correct.’” *Globetrotter Software, Inc. v. Elan Computer Group Inc.*, 362 F.3d 1367,

1381 (Fed. Cir. 2004) (quoting *Vitronics Corp.*, 90 F.3d at 1583). But, “[a]lthough the specification may aid the court in interpreting the meaning of disputed language in the claims, particular embodiments and examples appearing in the specification will not generally be read into the claims.” *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988); *see also Phillips*, 415 F.3d at 1323.

Although “less significant than the intrinsic record in determining the legally operative meaning of claim language,” the Court may rely on extrinsic evidence to “shed useful light on the relevant art.” *Phillips*, 415 F.3d at 1317 (quotation omitted). Technical dictionaries and treatises may help the Court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but such sources may also provide overly broad definitions or may not be indicative of how terms are used in the patent. *Id.* at 1318. Similarly, expert testimony may aid the Court in determining the particular meaning of a term in the pertinent field, but “conclusory, unsupported assertions by experts as to the definition of a claim term are not useful.” *Id.* Generally, extrinsic evidence is “less reliable than the patent and its prosecution history in determining how to read claim terms.” *Id.*

Section 112(b): Indefiniteness

Patent claims must particularly point out and distinctly claim the subject matter regarded as the invention. 35 U.S.C. § 112(b). “A claim is invalid for indefiniteness if its language, when read in light of the specification and the prosecution history, ‘fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention.’” *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015) (quoting *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014)). Whether a claim meets this definiteness requirement is a matter of law. *Young v. Lumenis, Inc.*, 492 F.3d 1336, 1344 (Fed. Cir. 2007). A party seeking to

invalidate a patent must overcome a presumption that the patent is valid. *See* 35 U.S.C. § 282; *Microsoft Corp. v. i4i Ltd. P'ship*, 131 S. Ct. 2238, 2243 (2011); *U.S. Gypsum Co. v. Nat'l Gypsum Co.*, 74 F.3d 1209, 1212 (Fed. Cir. 1996). As such, the burden is on the challenging party to prove the patent's invalidity by clear and convincing evidence. *Microsoft*, 131 S. Ct. at 2243; *U.S. Gypsum Co.*, 74 F.3d at 1212. The ultimate issue is whether someone working in the relevant technical field could understand the bounds of a claim. *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 783 (Fed. Cir. 2010).

When a term of degree is used in a claim, “the court must determine whether the patent provides some standard for measuring that degree.” *Biosig Instruments, Inc.*, 783 F.3d at 1378 (internal quotation omitted). Likewise, when a subjective term is used in a claim, “the court must determine whether that patent’s specification supplies some standard for measuring the scope of the [limitation].” *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005).

Section 112(f): Means-Plus-Function Limitations

Asserted patents may contain means-plus-function limitations that require construction. Where a claim limitation is expressed in means-plus-function language and does not recite definite structure in support of its function, the limitation is subject to 35 U.S.C. § 112(f) (formerly 35 U.S.C. § 112, ¶ 6). *Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). In relevant part, § 112(f) mandates that “such a claim limitation be construed to cover the corresponding structure . . . described in the specification and equivalents thereof.” *Id.* (citing 35 U.S.C. § 112(f)). Accordingly, when faced with means-plus-function limitations, courts “must turn to the written description of the patent to find the structure that corresponds to the means recited in the [limitation].” *Id.*

“It is well settled that a claim limitation that actually uses the word ‘means’ invokes a rebuttable presumption that § 112, ¶ 6 applies. In contrast, a claim term that does not use ‘means’ will trigger the rebuttable presumption that § 112, ¶ 6 does not apply.” *Apex Inc. v. Raritan Comp., Inc.*, 325 F.3d 1364, 1371 (Fed. Cir. 2003) (citations omitted). The Federal Circuit elaborated that “[w]hen a claim term lacks the word ‘means,’ the presumption can be overcome and § 112, ¶ 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (quotations omitted). “The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Id.*

AGREED TERMS

The parties have presented no agreed-upon constructions. *See* Dkt. No. 151 at 2.

CLAIM CONSTRUCTION OF DISPUTED TERMS

1. “connecting device” Terms

“a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device”
(’399 Patent, Claims 1, 11; ’449 Patent, Claims 1, 17)

“interfacing of the host device with a first connecting device of the interface device via the multi-purpose interface of the host device”
(’399 Patent, Claim 14)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“a component or group of components for interfacing the interface device with the host device”	Samsung, Lenovo, and Motorola: Subject to §112(6)
If M+F [(means-plus-function)], alternatively:	Function: [Agreed] interfacing the host device with the interface device via the multi-purpose interface of the host device.
Function: Agreed	

Structure: Fig. 1 and associated text ('399 and '449 Patents)	Structure: 12xx structures as described at '399, col. 9:30–48 and Fig. 2.
<p>“a second connecting device for interfacing the interface device with the data transmit/receive device” (’399 Patent, Claims 1, 11; ’449 Patent, Claims 1, 17)</p> <p>“interfacing of the data transmit/receive device with a second connecting device of the interface device” (’399 Patent, Claim 14)</p>	
<p>Plaintiff’s Proposed Construction</p> <p>“a component or group of components for interfacing the interface device with the data transmit/receive device”</p> <p>If M+F [(means-plus-function)], alternatively:</p> <p>Function: Agreed</p> <p>Structure: Fig. 1 and associated text ('399 and '449 Patents)</p>	<p>Defendants’ Proposed Construction</p> <p>Samsung, Lenovo, and Motorola: Subject to §112(6)</p> <p>Function: [Agreed] interfacing the interface device with the data transmit/receive device.</p> <p>Structure: 15xx structures as described at '399, col. 9:49–64 and Fig. 2.</p>

Dkt. No. 151, Ex. A at 1–2; Dkt. No. 175 at 4; Dkt. No. 185 at 2–3; Dkt. No. 197, Ex. A at 25–26, 30–32 & 37.

Plaintiff argues that its proposed construction is consistent with the Federal Circuit’s findings in the *Papst Opinion*. Dkt. No. 175 at 5. Plaintiff also submits that “[t]he words of the claims themselves explain the location of the first and second connecting device” *Id.* Further, Plaintiff argues, “[t]he varied usage of a term in the specification is evidence that it should be interpreted broadly.” *Id.* at 6. Finally, Plaintiff argues that Defendants cannot overcome the presumption that these non-means terms should not be treated as means-plus-function terms. *Id.* at 7–8.

Defendants respond that these disputed terms are means-plus-function terms because “they have no structural meaning and the specification does not redefine the meaning of ‘connecting

device’ in a way that connotes structure” Dkt. No. 185 at 3. In particular, Defendants argue that “device” is a “nonce” word that is tantamount to “means.” *Id.* at 3–4. Further, Defendants argue, “nothing in the specification or prosecution would inform one of skill in the art about the structural nature of the ‘connecting device’ term or otherwise impart structure to it.” *Id.* at 4.

Plaintiff replies that a “term that identifies a variety of structures provides sufficient structure.” Dkt. No. 191 at 1.

At the January 5, 2017 hearing, Defendants also urged that the word “component,” proposed by Plaintiff, is another “nonce” word that lacks structure. Docket No. 220 at 14:8–20. Plaintiff responded that Defendants are attempting to eliminate any consideration of the understanding of a person of ordinary skill in the art. *See id.* at 21:19–22:3.

Title 35 U.S.C. § 112(f) (formerly 35 U.S.C. § 112, ¶ 6) provides: “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”

“[T]he failure to use the word ‘means’ . . . creates a rebuttable presumption . . . that § 112, para. 6 does not apply.” *Williamson*, 792 F.3d at 1348 (citations and internal quotation marks omitted). “When a claim term lacks the word ‘means,’ the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Id.* at 1349 (citations and internal quotation marks omitted).

Williamson, in an *en banc* portion of the decision, abrogated prior statements that the absence of the word “means” gives rise to a “strong” presumption against means-plus-function

treatment. *Id.* (citation omitted). *Williamson* also abrogated prior statements that this presumption “is not readily overcome” and that this presumption cannot be overcome “without a showing that the limitation essentially is devoid of anything that can be construed as structure.” *Id.* (citations omitted). Instead, *Williamson* found, “[h]enceforth, we will apply the presumption as we have done prior to *Lighting World . . .*” *Id.* (citing *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004)). In a subsequent part of the decision not considered *en banc*, *Williamson* affirmed the district court’s finding that the term “distributed learning control module” was a means-plus-function term that was indefinite because of lack of corresponding structure, and in doing so *Williamson* stated that “‘module’ is a well-known nonce word.” 792 F.3d at 1350.

Williamson further noted that “[g]eneric terms such as ‘mechanism,’ ‘element,’ ‘device,’ and other nonce words that reflect nothing more than verbal constructs may be used in a claim in a manner that is tantamount to using the word ‘means’ because they ‘typically do not connote sufficiently definite structure’ and therefore may invoke § 112, para. 6.” *Id.* (emphasis added; citations and internal quotation marks omitted).

The term “connecting device,” as used in the ’399 Patent and ’449 Patent claims that are at issue here, is not a “nonce” term (*see id.*) but rather connotes a class of electrical connection structures, for example as disclosed in the specification as follows:

In the preferred embodiment of the interface device 10 shown in FIG. 2, the first *connecting device* 12 of FIG. 1 contains the following components: an SCSI interface 1220 and a 50-pin SCSI connector 1240 for attachment to an SCSI interface present on most host devices or laptops. The SCSI (small computer system interface) interface 1220 translates the data received via the SCSI connector 1240 into data understood by the DSP 1300, as known by those skilled in the art. Further, the *first connecting device* 12 comprises an EPP (enhanced parallel port) with a data transfer rate of approx. 1 MBps which delivers a more moderate data transfer rate of 1 MBps by comparison to the data transfer rate of 10 MBps of the

SCSI interface. The EPP 1260 is connected to a 25-pin D-shell connector 1280 to permit attachment to a printer interface of a host device for example. Optionally, the *first connecting device* 12 also comprises a 25-pin connector 1282 which permits the attachment of 8 digital outputs and 8 digital inputs 1284 at a host device.

* * *

As described above, the *first connecting device* 12 comprises the SCSI interface 1220 with a peak transfer rate of 10 MBps. An optional PCMCIA-to-SCSI adapter permits high-speed communication with laptop computers which are desirable and in widespread use, particularly by mobile service technicians. The EPP 1260 with its associated connector 1280 permits data transfer at a more moderate rate.

'399 Patent at 9:29–47 & 10:59–65 (emphasis added). The opinion of Plaintiff's expert is also persuasive in this regard. See Dkt. No. 175, Ex. 8, Nov. 21, 2016 Fernald Decl. at ¶ 38 (“a component or group of components necessary to contribute to an electrical connection between the two devices to be interfaced together”). Further, surrounding claim language provides context as to the “inputs and outputs” and how a connecting device “interacts with other components . . . in a way that . . . inform[s] the structural character of the limitation-in-question or otherwise impart[s] structure.” *Williamson*, 792 F.3d at 1351. For example, a portion of Claim 1 of the '399 Patent recites (emphasis added): “the data transmit/receive device *attached* to the second connecting device of the interface device.” At the January 5, 2017 hearing, Plaintiff was amenable to construing the disputed terms as being “electrical” components. E.g., Docket No. 220 at 11:4–7 (“These are connecting devices or components that provide those electrical connections and nothing more is needed than those electrical connections.”).

This finding of structure follows from the long-standing principles articulated prior to the abrogated *Lighting World* decision. See, e.g., *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320 (Fed. Cir. 2004) (“when the structure-connoting term ‘circuit’ is coupled with a description of the circuit’s operation, sufficient structural meaning generally will be conveyed to

persons of ordinary skill in the art, and § 112 ¶ 6 presumptively will not apply”; noting “language reciting [the circuits’] respective objectives or operations”); *Apex*, 325 F.3d at 1372 (“While we do not find it necessary to hold that the term ‘circuit’ by itself always connotes sufficient structure, the term ‘circuit’ with an appropriate identifier such as ‘interface,’ ‘programming’ and ‘logic,’ certainly identifies some structural meaning to one of ordinary skill in the art.”); *Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 705 (Fed. Cir. 1998) (“Even though the term ‘detector’ does not specifically evoke a particular structure, it does convey to one knowledgeable in the art a variety of structures known as ‘detectors.’ We therefore conclude that the term ‘detector’ is a sufficiently definite structural term to preclude the application of § 112, ¶ 6.”); *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996) (finding that “detent mechanism” was not a means-plus-function term because it denotes a type of device with a generally understood meaning in the mechanical arts).²

Defendants have cited *TracBeam, LLC v. T-Mobile US, Inc.*, 6:14-CV-678-RWS, 2016 WL 3751624, at *6 (E.D. Tex. July 14, 2016), but *TracBeam* is distinguishable because there the Court found that the context in which the terms at issue were used failed to suggest any structure. Here, by contrast, the above-discussed context provided by the claims and the specification demonstrate that the “connecting device” terms refer to electrical connections.

The Court therefore hereby construes the disputed terms as set forth in the following chart:

² *Greenberg*, 91 F.3d at 1583 (“‘detent’ denotes a type of device with a generally understood meaning in the mechanical arts, even though the definitions are expressed in functional terms”); *id.* (“It is true that the term ‘detent’ does not call to mind a single well-defined structure, but the same could be said of other commonplace structural terms such as ‘clamp’ or ‘container.’ What is important is not simply that a ‘detent’ or ‘detent mechanism’ is defined in terms of what it does, but that the term, as the name for structure, has a reasonably well understood meaning in the art.”)

<u>Term</u>	<u>Construction</u>
<p>“a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device”</p> <p>(’399 Patent, Claims 1, 11; ’449 Patent, Claims 1, 17)</p> <p>“interfacing of the host device with a first connecting device of the interface device via the multi-purpose interface of the host device”</p> <p>(’399 Patent, Claim 14)</p>	<p>“first connecting device”:</p> <p>“a first electrical component, or group of electrical components, for interfacing the interface device with the host device”</p>
<p>“a second connecting device for interfacing the interface device with the data transmit/receive device”</p> <p>(’399 Pat., Cls. 1, 11; ’449 Pat., Cls. 1, 17)</p> <p>“interfacing of the data transmit/receive device with a second connecting device of the interface device”</p> <p>(’399 Pat., Cl. 14)</p>	<p>“second connecting device”:</p> <p>“a second electrical component, or group of electrical components, for interfacing the interface device with the data transmit/receive device”</p>

2. “first command interpreter” and “second command interpreter”

“first command interpreter” (’399 Patent, Claims 1, 11)	
Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
<p>“a program that receives a command and executes some function based on that command”³</p> <p>If M+F [(means-plus-function)], alternatively:</p>	<p>Samsung, Lenovo, and Motorola: Subject to §112(6)</p> <p>Function: [Agreed] when receiving an inquiry from the host device as to a type of a device</p>

³ Plaintiff previously proposed: “a component or group of components for interfacing the interface device with the data transmit/receive device.” Dkt. No. 151, Ex. A at 2.

<p>Function: Agreed</p> <p>Structure: '399 patent Fig. 1; 6:19–26, 6:48–55</p>	<p>attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the [driver for the input/output device customary in a host device] [specific driver for the multi-purpose interface].</p> <p>Structure: No algorithm, source code, or flow chart is disclosed for performing the recited function, therefore the term is indefinite.</p>
--	--

“second command interpreter” ('399 Patent, Claims 1, 11)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
<p>“a program that receives a command and executes some function based on that command”⁴</p> <p>If M+F [(means-plus-function)], alternatively:</p> <p>Function: Agreed</p> <p>Structure: '399 patent Fig. 1; 6:19–26, 6:48–55</p>	<p>Samsung, Lenovo, and Motorola: Subject to §112(6)</p> <p>Function: [Agreed] interpret a data request command from the host device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.</p> <p>Structure: No algorithm, source code, or flow chart is disclosed for performing the recited function, therefore the term is indefinite.</p>

Dkt. No. 151, Ex. A at 2–3; Dkt. No. 175 at 15; Dkt. No. 185 at 9; Dkt. No. 197, Ex. A at 38–39 & 41–42.

⁴ Plaintiff previously proposed: “a component or group of components for interfacing the interface device with the data transmit/receive device.” Dkt. No. 151, Ex. A at 2.

Plaintiff argues that its proposal is supported by the specification as well as by “[t]he common and ordinary meaning of command interpreter at the time of the invention.” Dkt. No. 175 at 16. Plaintiff also argues that Defendants cannot overcome the presumption that these non-means terms should not be treated as means-plus-function terms. *Id.* at 17.

Defendants respond that “command interpreter” is purely functional in nature and does not connote any structure. Dkt. No. 185 at 10. Defendants also urge that “[t]he specification fails to disclose any structure corresponding to the claimed functions” and “fails to disclose an algorithm for performing the claimed functions.” *Id.* at 12, 14.

Plaintiff replies that “[c]ommand interpreter’ is a well-understood structure in computer science,” and “the claims also explain exactly how the commands are interpreted.” Dkt. No. 191 at 3–4.

Legal principles regarding 35 U.S.C. § 112, ¶ 6 and *Williamson*, 792 F.3d 1339, are discussed above as to the “connecting device” terms.

Here, “command interpreter” is not a “nonce” term (*see Williamson*, 792 F.3d at 1350) but rather connotes a class of structures. *See* ’399 Patent at 6:48–55; *see also* Dkt. No. 175, Ex. 9, *The IEEE Standard Dictionary of Electrical and Electronics Terms* 549 (6th ed. 1996) (“A computer program that translates and executes each statement or construct of a computer program before translating and executing the next.”); *id.*, Ex. 11, *Microsoft Press Computer Dictionary* 101 (3d ed. 1997); *id.*, Ex. 8, Nov. 21, 2016 Fernald Decl. at ¶ 45. Also, surrounding claim language provides context as to the “inputs and outputs” and how a command interpreter “interacts with other components . . . in a way that . . . inform[s] the structural character of the limitation-in-question or otherwise impart[s] structure.” *Williamson*, 792 F.3d at 1351. For example, a portion of Claim 1 of the ’399 Patent recites (emphasis added): “wherein the first command interpreter is

configured in such a way that the command interpreter, when *receiving an inquiry* from the host device as to a type of a device attached to the multi-purpose interface of the host device, *sends a signal*, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device.” Indeed, Defendants’ expert, Dr. Perry, agreed during deposition that “a person of ordinary skill in the art at the time of the invention was aware of this particular class of things called command interpreters.” Dkt. No. 191, Ex. 16, Dec. 8, 2016 Perry dep. at 56:18–23.

This finding of structure is consistent with the long-standing principles articulated prior to the abrogated *Lighting World* decision, which are also cited above as to the “connecting device” terms. *See, e.g., Linear Tech.*, 379 F.3d at 1320; *Apex*, 325 F.3d at 1372; *Personalized Media*, 161 F.3d at 705; *Greenberg*, 91 F.3d at 1583.

Finally, although Defendants have argued that Plaintiff’s proposed constructions are purely functional, Plaintiff’s proposal of a “program” is structural in the context here at issue. *See, e.g., Affymetrix, Inc. v. Hyseq, Inc.*, 132 F. Supp. 2d 1212, 1232 (N.D. Cal. 2001) (finding that “‘computer code’ is not a generic term, but rather recites structure that is understood by those of skill in the art to be a type of device for accomplishing the stated functions”).

The Court therefore hereby construes the disputed terms as set forth in the following chart:

<u>Term</u>	<u>Construction</u>
“first command interpreter” (’399 Patent, Claims 1, 11)	“a first program that receives a command and executes some function based on that command”
“second command interpreter” (’399 Patent, Claims 1, 11)	“a second program that receives a command and executes some function based on that command”

3. “multi-purpose interface”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“an interface comprising both an interface card and specific driver software for the interface card”

Dkt. No. 151, Ex. A at 1; Dkt. No. 175 at 18; Dkt. No. 185 at 15; Dkt. No. 197, Ex. A at 1. The parties submit that this term appears in “[a]ll claims.” Dkt. No. 151, Ex. A at 1.

Plaintiff urges that this term is “readily understandable.” Dkt. No. 175 at 19. Plaintiff argues that Defendants’ proposal of a “card” should be rejected because the specification explains that laptop host systems may have “little internal space to plug in an interface card.” *Id.* (quoting ’399 Patent at 2:12–13). As to Defendants’ proposal of a “specific driver,” Plaintiff argues that “[w]hile additional claim elements may require a specific driver in some claims, this does not mean the term itself embeds that requirement.” Dkt. No. 175 at 19.

Defendants respond that “the specification clearly provides a definition for the term ‘multi-purpose interface’ and expresses a clear intention to redefine ‘multi-purpose interface.’” Dkt. No. 185 at 15.

Plaintiff replies that “the same paragraph [cited by Defendants] provides different methods for creating a multi-purpose interface” Dkt. No. 191 at 5–6.

The specification indeed discloses that a multi-purpose interface can comprise an interface card and specific driver software:

As described in the following, the interface device according to *the present invention* is to be attached to a host device by means of a multi-purpose interface of the host device which can be implemented, for example, as an SCSI interface or as an enhanced printer interface. *Multi-purpose interfaces comprise both an interface card and specific driver software for the interface card.* The driver software can be designed so that it can replace the BIOS driver routines. Communication between the host device and the devices attached to the multi-

purpose interface then essentially takes place by means of the specific driver software for the multi-purpose interface and no longer primarily by means of BIOS routines of the host device. Recently however drivers for multi-purpose interfaces can also already be integrated in the BIOS system of the host device as, alongside classical input/output interfaces, multi-purpose interfaces are becoming increasingly common in host devices. It is of course also possible to use BIOS routines in parallel with the specific driver software for the multi-purpose interface, if this is desired.

'399 Patent at 4:40–59 (emphasis added).

This disclosure of what multi-purpose interfaces can “comprise” does not rise to the level of a lexicography. *See Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (“To act as its own lexicographer, a patentee must ‘clearly set forth a definition of the disputed claim term’ other than its plain and ordinary meaning.”) (quoting *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (emphasis added)).

In some circumstances, references to “the present invention” can limit the scope of a claim term. *See Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir. 2007) (“When a patent thus describes the features of the ‘present invention’ as a whole, this description limits the scope of the invention.”). Here, however, the specification teaches away from requiring an interface card. *See* '399 Patent at 2:7–13 (discussing “portable host systems in the form of laptops whose minimum possible size leaves little internal space to plug in an interface card”). Also, as quoted above, the specification discloses that “drivers for multi-purpose interfaces can also already be integrated in the BIOS routines of the host system as, alongside classical input/output interfaces, multi-purpose interfaces are becoming increasingly common in host devices.” *Id.* at 4:52–56.

Finally, Defendants’ propose requiring a “specific driver,” but whereas Claim 11 of the '399 Patent expressly recites such a limitation, no such limitation appears in, for example, Claim 1

of the '399 Patent. *See Phillips*, 415 F.3d at 1314 (“Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.”). Defendants have not demonstrated that a “specific driver” limitation should be applied across all instances of the disputed term.

The Court therefore hereby expressly rejects Defendants’ proposed construction. No further construction is necessary. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) (“Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy.”); *see also O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008) (“[D]istrict courts are not (and should not be) required to construe every limitation present in a patent’s asserted claims.”); *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1207 (Fed. Cir. 2010) (“Unlike *O2 Micro*, where the court failed to resolve the parties’ quarrel, the district court rejected Defendants’ construction.”); *ActiveVideo Networks, Inc. v. Verizon Commcn’s, Inc.*, 694 F.3d 1312, 1326 (Fed. Cir. 2012); *Summit 6, LLC v. Samsung Elecs. Co., Ltd.*, 802 F.3d 1283, 1291 (Fed. Cir. 2015).

The Court accordingly hereby construes “**multi-purpose interface**” to have its **plain meaning**.

4. “specific driver for the multi-purpose interface”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	No construction necessary. ⁵

⁵ Defendants previously proposed: “specific software for the specific multi-purpose interface.” Dkt. No. 151, Ex. A at 8.

Dkt. No. 151, Ex. A at 8; Dkt. No. 175 at 20; Dkt. No. 197, Ex. A at 119.

Plaintiff submits: “Defendants appear to have dropped their proposed construction for ‘specific driver for the multi-purpose interface.’ The term does not appear to be addressed in their response brief.” Dkt. No. 191 at 5 n.31. In the parties’ Joint Claim Construction Chart, both sides propose that no construction is necessary. Dkt. No. 197, Ex. A at 119.

The Court therefore concludes that this term is no longer in dispute.

5. “parameter” and “signal” Terms

“sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device”
(’399 Patent, Claims 1, 11)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“sends a signal to the host device in response to the inquiry that misidentifies the class of the device connected to the host device as [an input/output device] [a storage device] customary in a host device”

“sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is a storage device customary in a host device”
(’449 Patent, Claims 1, 17)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“sends a signal to the host device in response to the inquiry that misidentifies the class of the device connected to the host device as [an input/output device] [a storage device] customary in a host device”

“at least one parameter indicative of the class of devices to be sent to the computer through the multipurpose interface of the computer, independent of the analog source, wherein the analog data acquisition device is not within the class of devices”
 (’746 Patent, Claim 1)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“at least one parameter that misidentifies the class of the analog data acquisition device”

“the at least one parameter”
 (’746 Patent, Claims 15, 17, 34; ’144 Patent, Claims 1, 27, 28, 29, 31, 34, 35, 61, 84, 86, 87; ’437 Patent, Claims 1, 22, 25)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“the at least one parameter that misidentifies the class of the [ADGPD] [analog data acquisition device] to the computer”

“an identification parameter”
 (’437 Patent, Claim 43)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“a parameter that misidentifies the class of the [ADGPD] to the host computer”

“at least one parameter identifying the analog data acquisition device as a digital mass storage device, instead of as an analog data acquisition device and regardless of the analog source”
 (’746 Patent, Claim 31)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“at least one parameter misidentifying the class of the analog data acquisition device as a [digital mass storage device] [digital device] instead of as an analog data acquisition device [, and] regardless of the analog source”

“at least one parameter which provides identification information regarding the ADGPD”
(’144 Patent, Claim 1)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“at least one parameter that misidentifies the class of the ADGPD to the computer”

“wherein the at least one parameter provides identification information regarding the ADGPD”
(’144 Patent, Claim 86)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“wherein the at least one parameter that misidentifies the class of the ADGPD to the host device”

“responding to the inquiry from the host device by the interface device in such a way that it is an input/output device customary in a host device” (’399 Patent, Claim 14)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from [an input/output device] [a storage device] customary in a host device.	“responding to the inquiry from the host device by the interface device by misidentifying the class of the device connected to the host device as [an input/output device] [a storage device] customary in a host device”

Dkt. No. 151, Ex. A at 3–6; Dkt. No. 175 at 20–22; Dkt. No. 185 at 19–20; Dkt. No. 197, Ex. A at 44–45, 47–48, 50, 52, 59, 60–61, 63 & 66–67.

Plaintiff argues that whereas “[t]hese are common words that can be understood without further construction,” “Defendants’ proposed constructions would not clarify the terms for the jury, but rather import a new limitation, ‘misidentification,’ into the claims.” Dkt. No. 175 at 22.

Defendants respond that “including the word ‘misidentify’ in Defendants’ construction is appropriate because it originates with the patentee’s own disclaimers and statements during

prosecution.” Dkt. No. 185 at 20. Defendants also argue that the specification is consistent with Defendants’ interpretation of the prosecution history. *Id.* at 23.

Plaintiff replies that “Defendants’ efforts to import this limitation into this grouping of ‘send/parameter signal’ terms—a grouping they concocted—is a ruse to mix together the various prosecution histories of various patents.” Dkt. No. 191 at 7. Plaintiff also argues that Defendants have not shown any disclaimer, particularly where the claims discussed during prosecution already expressly recited the limitations that are the subject of Defendants’ proposed disclaimer. *See id.* at 7–8.

At the January 5, 2017 hearing, Plaintiff urged that the patentee distinguished prior art during prosecution based on the claimed invention being *capable* of misrepresenting, not necessarily always misrepresenting. Docket No. 220 at 46:17–21. Defendants disagreed and also argued that if these disputed terms require merely a capability, then the terms should be expressly construed as such. *Id.* at 48:12–50:2.

On balance, Defendants’ proposal of “misidentifies” is too narrow because it would exclude situations in which the identification is accurate. Defendants have cited prosecution history in which the patentee explained that the claimed invention “lies” regarding the device type. *See, e.g.*, Dkt. No. 185, Ex. 7, Mar. 18, 2002 Amendment (’399 Patent) at 6. Such statements, however, can be readily understood as meaning that the claimed invention “lies” by specifying a particular device type *without regard* to truthfulness. *See* ’399 Patent at 4:65–5:6 (“*regardless* of the type of the data transmit/receive device”) (emphasis added); *see also id.* at 6:19–22 (similar).

Thus, Defendants have not demonstrated that the prosecution history contains any clear disclaimer. *See, e.g.*, *Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1332 (Fed. Cir. 2004) (“Because the statements in the prosecution history are subject to multiple reasonable

interpretations, they do not constitute a clear and unmistakable departure from the ordinary meaning of the term . . .”). Defendants’ reliance upon Plaintiff’s prior statement that the claimed invention “always ‘lies’” is similarly unavailing. *See* Dkt. No. 185, Ex. 15, No. 2014-1110 (Fed. Cir.), Reply Brief at 1. Also of note, some of the claims expressly recite Defendants’ proposed misidentification limitation where required. *See, e.g.*, ’746 Patent at Cl. 1 (“at least one parameter indicative of the class of devices . . . wherein the analog data acquisition device is not within the class of devices”).

Finally, Defendants argue that the attached device must be analog and therefore cannot be a hard drive (because a hard drive is necessarily digital). Specifically, Defendants have pointed to “analog” limitations in claims of the ’399 Patent. To the extent that the claims recite analog limitations, those limitations must be met, but Defendants have not shown that those limitations in particular claims warrant restricting the meaning of the disputed terms across all claims of the patents-in-suit.

On balance, these disputed terms are readily understandable as requiring a certain type of identification regardless of whether such an identification is accurate or not. This is also consistent with the statement in the *Papst Opinion* that “the interface device induces the host to treat it—and, indirectly, data devices on the other side of the interface device, *no matter what type of devices they are*—like the device that is already familiar to the host.” *Papst Opinion* at 1259 (emphasis added).

The Court therefore hereby expressly rejects Defendants’ proposed constructions. No further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan*, 626 F.3d at 1207; *ActiveVideo*, 694 F.3d at 1326; *Summit 6*, 802 F.3d at 1291.

The Court therefore hereby construes these disputed “parameter” and “signal” terms to have their **plain meaning**.

6. “customary” Terms

“the driver for the [input/output] [storage] device customary in a host device” (’399 Patent, Claims 1, 11; ’449 Patent, Claim 1)	
Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“the driver for the data [input/output] [storage] device normally part of commercially available computer systems”	“a generic driver for a class of generic input/output devices typically found on the host device at the time of the invention, such as hard disks, graphics devices, printers, floppy disk drives, CD-ROM drives, or tape drives”
“the usual driver for the [input/output] [storage] device” (’399 Patent, Claim 14)	
Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“the set of software routines used to direct a data [input/output device] [storage device] normally part of commercially available computer systems”	“a generic driver for a class of generic input/output devices typically found on the host device at the time of the invention, such as hard disks, graphics devices, printers, floppy disk drives, CD-ROM drives, or tape drives”
“whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device” (’399 Patent, Claim 1)	
Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“whereupon communication between a host device and the interface device occurs using a generic driver for a class of generic input/output devices typically found on the host device at the time of the invention, such as hard disks, graphics devices, printers, floppy disk drives, CD-ROM drives, or tape drives”

“customary driver”
(’144 Patent, Claims 1, 81–82, 86)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“a set of software routines normally part of commercially available computer systems”	“a generic driver for a class of generic devices typically found on the host device at the time of the invention, such as hard disks, graphics devices, printers, floppy disk drives, CD-ROM drives, or tape drives”

“a [storage] [input/output] device customary in a host device”
(’399 Patent, Claims 1, 11, 14; ’449 Patent, Claims 1, 17; ’144 Patent, Claims 81, 83)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“a [data input/output] [storage] device normally part of commercially available computer systems”	Samsung/Apple/ZTE/LG/Huawei propose: “[input/output] [storage] device normally part of commercially available computer systems at the time of the invention”

Dkt. No. 151, Ex. A at 6; Dkt. No. 175 at 23–24; Dkt. No. 185 at 36; Dkt. No. 197, Ex. A at 68, 72, 73–75 & 79–80.

Plaintiff argues that “[t]he specification does not indicate that only drivers normally installed in host devices at the time of the invention are somehow critical to practicing the invention.” Dkt. No. 175 at 24.

Defendants respond that their proposal of “at the time of the invention” is consistent with the *Papst Opinion*. Dkt. No. 185 at 36.

Plaintiff replies that Defendants have not addressed the prosecution history cited by Plaintiff in which the patentee did not refer to any limitation of what was customary at the time of the invention. Dkt. No. 191 at 9.

At the January 5, 2017 hearing, Plaintiff submitted that there is no prohibition against “after-arising technology” being within the literal scope of claims. *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1371–72 (Fed. Cir. 2008).

The *Papst Opinion* found:

Papst appeals the district court’s construction of the term “input/output device customary in a host device” in the ’399 patent and the term “storage device customary in a host device” in the ’449 patent. The district court construed the ’399 term to be a “data input/output device that was normally present within the chassis of most commercially available computers at the time of the invention.” *Claim Constr. Op.* at 55. The court’s construction for the ’449 patent is identical, except that the words “data input/output” are replaced with the word “storage.” *Id.*

When a host computer asks the claimed interface device what type of device it is, the interface device must respond that it is an “input/output device customary in a host device” so that the host will communicate with the interface device using the host’s native software for that type of device. The parties disagree over whether the claims require that the device the interface device says it is be a type of device “normally present within the chassis” of a computer. We hold that the claims are not so limited. *The written description makes clear that it is enough for the device to be one that was normally part of commercially available computer systems at the time of the invention.*

Papst Opinion at 1269–70 (emphasis added).

The Court therefore applies the Federal Circuit’s finding that “customary” includes a limitation of “normally part of commercially available computer systems *at the time of the invention.*” *Id.* at 1270 (emphasis added); *see PC Connector Solutions LLC v. SmartDisk Corp.*, 406 F.3d 1359, 1363 (Fed. Cir. 2005) (“meaning must be interpreted as of [the] effective filing date”); *see also Kopykake Enters., Inc. v. Lucks Co.*, 264 F.3d 1377, 1383 (Fed. Cir. 2001) (“[W]hen a claim term understood to have a narrow meaning when the application is filed later acquires a broader definition, the literal scope of the term is limited to what it was understood to mean at the time of filing.”) (citation omitted); *cf. Muniauction, Inc. v. Thomson Corp.*, 532 F.3d

1318, 1326 (Fed. Cir. 2008) (“The use of ‘conventional’ to modify ‘Internet browser’ and ‘web browsing software’ denotes a reference to web browsers in existence at the time of the alleged invention . . .”); *PC Connector*, 406 F.3d at 1363 (as to “normally,” “conventional,” “traditionally,” and “standard,” noting that “their time-related significance is implicit from their ordinary usage”).

Finally, Defendants’ proposed list of examples, which begins in Defendants’ proposals with the phrase “such as,” is hereby expressly rejected because any potential benefit of including the proposed list is outweighed by the risk that such a list might be perceived as limiting.

The Court therefore hereby construes the disputed terms as set forth in the following chart:

<u>Term</u>	<u>Construction</u>
“the driver for the [input/output] [storage] device customary in a host device” (’399 Patent, Claims 1, 11; ’449 Patent, Claim 1)	“the driver for the [input/output] [storage] device normally part of commercially available computer systems at the time of the invention”
“the usual driver for the [input/output] [storage] device” (’399 Patent, Claim 14)	“the driver for the [input/output] [storage] device normally part of commercially available computer systems at the time of the invention”
“whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device” (’399 Patent, Claim 1)	“whereupon the host device communicates with the interface device by means of the driver for the input/output device normally part of commercially available computer systems at the time of the invention”
“customary driver” (’144 Patent, Claims 1, 81–82, 86)	“driver for a device normally part of commercially available computer systems at the time of the invention”

<p>“a [storage] [input/output] device customary in a host device”</p> <p>(’399 Patent, Claims 1, 11, 14; ’449 Patent, Claims 1, 17; ’144 Patent, Claims 81, 83)</p>	<p>“[storage] [input/output] device normally part of commercially available computer systems at the time of the invention”</p>
--	---

7. “automatic” Terms

<p>“automatic” / “automatically”</p> <p>(’144 Patent, Claims 1, 61–63, 78–79, 86; ’437 Patent, Claims 1, 43; ’746 Patent, Claims 1, 17, 31, 34)</p>	
<p>Plaintiff’s Proposed Construction</p> <p>No construction necessary apart from the other proposed constructions, if any.</p>	<p>Defendants’ Proposed Construction</p> <p>Lenovo/Motorola: “to independently perform an action without any external influence or control”</p> <p>Samsung/Apple/ZTE/LG/Huawei: “without any user intervention”</p>
<p>“automatic [] transfer”</p> <p>(’437 Patent, Claim 1)</p>	
<p>Plaintiff’s Proposed Construction</p> <p>No construction necessary apart from the other proposed constructions, if any.</p>	<p>Defendants’ Proposed Construction</p> <p>Samsung/Apple/ZTE/LG: “transfer without any user intervention”</p>
<p>“automatically transfer”</p> <p>(’746 Patent, Claims 31, 34)</p>	
<p>Plaintiff’s Proposed Construction</p> <p>No construction necessary apart from the other proposed constructions, if any.</p>	<p>Defendants’ Proposed Construction</p> <p>Samsung/Apple/ZTE/LG: “transfer without any user intervention”</p>
<p>“automatic file transfer process”</p> <p>(’144 Patent, Claims 1, 79, 86; ’437 Patent, Claim 1)</p>	
<p>Plaintiff’s Proposed Construction</p> <p>No construction necessary apart from the other proposed constructions, if any.</p>	<p>Defendants’ Proposed Construction</p> <p>Samsung/Apple/ZTE/LG: “transfer without any user intervention”</p>

“automatically transferring data from the analog source to the host device in response to a digital data read command from the host device”
(’746 Patent, Claim 34)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any, or, in the alternative: “transfer data without user intervention other than to start the process, data from the analog source to the host device in response to a digital data read command from the host device”	Samsung/Apple/ZTE/LG/Huawei propose: “transferring, without any user intervention, data from the analog source to the host device in response to a digital data read command from the host device”

“automatic recognition process”
(’144 Patent, Claims 1, 61–63, 78, 86; ’437 Patent, Claim 1)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“process by which the computer recognizes the ADGPD upon connection with the computer without requiring any user intervention other than to start the process”	No construction necessary apart from other proposed constructions.

Dkt. No. 151, Ex. A at 6–7; Dkt. No. 175 at 26; Dkt. No. 185 at 26; Dkt. No. 197, Ex. A at 86, 96–97, 99, 103–104 & 105.

Plaintiff argues that Defendants’ proposals “could result in a misreading of the claims that would forbid any kind of user intervention (including that required to start it) from an ‘automatic process.’” Dkt. No. 175 at 27–28. As to the term “automatic recognition process,” in particular, Plaintiff argues that the term “does not preclude basic, initiating manual operations such as connecting the host and device and starting the automatic recognition process itself.” *Id.* at 28.

Defendants Lenovo and Motorola respond that “[i]n the context of the asserted claims, the ‘automatic’ terms relate to actions performed by the processor of the claimed interface device.”

Dkt. No. 185 at 26. Defendants Samsung, Apple, ZTE, and LG separately urge that the proposed constructions “should at least include the language ‘without user intervention.’” *Id.* at 30.

Plaintiff replies that during prosecution the patentee distinguished intervention by user-loaded software but “[t]he patentee identifie[d] prompting from the host PC as within the scope of the claims.” Dkt. No. 191 at 9–10.

At the January 5, 2017 hearing, Plaintiff alternatively proposed that “automatic” could be construed to mean “without any end user intervention other than to start the process.” Docket No. 220 at 61:10–12.

Claim 1 of the ’144 Patent, for example, recites in relevant part (emphasis added):

wherein the processor also is adapted to be involved in an *automatic recognition process* in which, when the i/o port is operatively interfaced with a multi-purpose interface of a computer, the processor executes at least one instruction set stored in the program memory and thereby causes at least one parameter which provides identification information regarding the ADGPD [(analog data generating and processing device)] to be *automatically* sent through the i/o port and to the multi-purpose interface of the computer . . . ;

wherein the processor is further adapted to be involved in an *automatic file transfer process* in which, when the i/o port is operatively interfaced with the multi-purpose interface of the computer, and after the at least one parameter has been received by the multi-purpose interface of the computer, the processor executes at least one other instruction set stored in the program memory and thereby causes the at least one file of digitized analog data to be transferred to the computer regardless of the identity of the manufacturer of the computer and without requiring any user-loaded file transfer enabling software to be loaded on or installed in the computer at any time.

The context of surrounding claim language thus suggests that “automatically” merely means without user intervention. Also, Defendants Lenovo and Motorola’s proposal of excluding “external influence” appears to be inconsistent with express claim language. For example, a portion of Claim 31 of the ’746 Patent expressly recites (emphasis added): “the processor is configured to *automatically* transfer the digitized analog data acquired from the analog source to

the host device *in response to a digital mass storage device data read signal from the host device . . .*” See also ’144 Patent at 6:2–5. Likewise, Defendants Lenovo and Motorola have not shown how an “automatic file transfer process,” for example, could transfer a file to the host without any “influence or control” by the host.

As to the prosecution history, the patentee stated, for example:

It is respectfully submitted that the automatic processing for device recognition claim feature covers software that is executed by a processor of a peripheral device (and not a processor of a PC) and that causes “data transfer and communications enabling data” to be automatically generated and thereafter to be sent to a PC. This software is run by the peripheral without any user intervention and without any processing intervention via the PC.

Dkt. No. 185, Ex. 18, Sept. 12, 2008 Amendment (’144 Patent) at 13 (emphasis omitted); *see, e.g.*, *id.*, Ex. 13, Oct. 29, 2012 Amendment (’746 Patent) at 13–14 (“the host computer in Smith assigns an identifying number rather than the peripheral processor automatically sending identification information”; “The cited passages of Smith do not mention a peripheral processor automatically providing identification information to the host computer.”); *id.*, Ex. 18, Sept. 12, 2008 Amendment (’144 Patent) at 13 (“software is run by the peripheral without any user intervention and without any processing intervention via the PC”); *id.*, Ex. 19, Aug. 21, 2008 Amendment (’144 Patent) at 10; *id.*, Ex. 8, July 26, 2010 Appellant’s Brief (’144 Patent) at 24 (“there is no description anywhere in Hashimoto of any process that sends an identification parameter to the host computer, automatically or otherwise”); *id.*, Ex. 20, Aug. 8, 2007 Supplemental Preliminary Amendment (’144 Patent) at 12–13 (“[T]he Coolpix 100 References do not involve active processing by the camera in connection with a recognition process. Rather, the Coolpix 100 References merely teach the use of ‘dummy’ memory cards that are recognized by a computer reading information stored in a defined memory location in the card.”).

On balance, the prosecution history cited by Defendants can be fairly read as meaning merely that the peripheral must have its own processor that performs the processing required of it in each claim. In other words, although processing in the peripheral is required, no showing has been made that involvement by the host device is prohibited. Defendants Lenovo and Motorola thus have not demonstrated any disclaimer that precludes action by the host device. *See, e.g., Golight*, 355 F.3d at 1332.

Nonetheless, “automatically” is presumed to have some meaning because “claims are interpreted with an eye toward giving effect to all terms in the claim.” *Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1275 (Fed. Cir. 2012) (quoting *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006)).

Here, the above-discussed claim language and prosecution history demonstrate that “automatically” means without user intervention. *See also CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1235 (Fed. Cir. 2005) (affirming construction of “automatically” as “once initiated, the function is performed by a machine, without the need for manually performing the function”).

Naturally, however, “automatic” operation does not preclude *any* user involvement, such as in physically connecting devices or providing electrical power. *See, e.g., Z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1351 (Fed. Cir. 2007) (“nothing in the claims or specification precludes user interaction in the *selection* or *initialization* of the automatic registration”). Likewise, the ’144 Patent specification discloses that “from the host device the user can also create a configuration file, whose entries automatically set and control various functions of the interface device” ’144 Patent at 6:47–49.

At the January 5, 2017 hearing, Defendants Lenovo and Motorola argued that Z4 is distinguishable because the claims in Z4 were “*silent as to the initiation* of the registration process”

that was there at issue. Docket No. 220 at 66:20–67:12 (quoting 507 F.3d at 1351 (emphasis added)). Defendants Lenovo and Motorola argued that here, by contrast, the claims recite how the automatic processes are initiated. *E.g., id.* at 70:35–71:18. On balance, Defendants Motorola and Lenovo have not demonstrated that the initiation limitations they have cited are necessarily exclusive. In other words, Defendants Motorola and Lenovo have not shown that the claims require that nothing other than the recited limitations can be involved in initializing or controlling the recited automatic processes. On balance, Z4 is instructive as to the possibility of, for example, “user interaction in the selection or initialization” in addition to whatever limitations are expressly recited in the claims. 507 F.3d at 1351.

Also, at the January 5, 2017 hearing, the other Defendants argued that the word “any” (as part of their proposal of “without *any* user intervention”) should be adopted and was not intended to exclude, for example, a user plugging in a device. Docket No. 220 at 76:17–79:13. Nonetheless, on balance, the word “any” should be omitted from the construction so as to reduce the risk of an overbroad reading of “user involvement” as discussed above.

The Court thus hereby construes “**automatic**” and “**automatically**” to mean “**without user intervention.**” No separate construction of the other disputed terms is necessary apart from this construction of “automatic” and “automatically.”

8. “data transmit/receive device”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“a device that is capable of either (a) transmitting data or (b) transmitting data and receiving data”	“a device that is capable of transmitting analog data to and receiving data from the host device and that is capable of actively communicating with the host device” ⁶

⁶ Defendants previously proposed: “a device that is capable of transmitting data to or receiving data from the host device and that is capable of actively communicating with the host device.” Dkt. No. 151, Ex. A at 7.

Dkt. No. 151, Ex. A at 7–8; Dkt. No. 175 at 30; Dkt. No. 185 at 32; Dkt. No. 197, Ex. A at 109–110.

Plaintiff argues that “[t]he term ‘device’ should be construed broadly, given its broad and varied scope found in the claims and specifications of the Patents.” Dkt. No. 175 at 30. Plaintiff also asserts that “[i]n some claims, the device is only required to transmit data, while in other claims the device is required to both transmit and receive data, e.g. to support two-way communications.” *Id.* at 31. Plaintiff urges that Defendants’ proposal of requiring “actively communicating with the host device” “seeks to import a limitation from the specification and confine the claim to a preferred embodiment.” *Id.* (citing ’399 Patent at 3:25–28 & 5:56–63).

Defendants respond that “[t]he specification . . . appears to use the slash or slant to indicate an ‘and’ relationship.” Dkt. No. 185 at 32; *see* ’399 Patent at Abstract (“input/output interfaces”; “input/output device”), 3:10–12 (“MFM encoder/decoder”; “serial/parallel adapter”), 5:13–20 (“BIOS system (Basic Input/Output System”), 6:52–55 (“read/write assignment”), 9:50–54 (“8 sample/hold (S&H) circuits”) & 10:36–39 (“high-speed sample/hold amplifier”). Defendants also argue that their proposal of “analog” is supported by the specification, such as the Title of the ’399 Patent and the Title of the ’449 Patent, as well as by the context of surrounding claim language. Dkt. No. 185 at 33.

Plaintiff replies that “[t]he specification uses ‘/’ in a variety of ways.” Dkt. No. 191 at 10.

Claim 1 of the ’399 Patent recites (emphasis added):

1. An interface device for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a *data transmit/receive device*, the *data transmit/receive device* being arranged for providing analog data, comprising:

a processor;
a memory;

a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device; and

a second connecting device for interfacing the interface device with the *data transmit/receive device*, the second connecting device including a sampling circuit for sampling the analog data provided by the *data transmit/receive device* and an analog-to-digital converter for converting data sampled by the sampling circuit into digital data,

wherein the interface device is configured by the processor and the memory to include a first command interpreter and a second command interpreter,

wherein the first command interpreter is configured in such a way that the command interpreter, when receiving an inquiry from the host device as to a type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the *data transmit/receive device* attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device, and

wherein the second command interpreter is configured to interpret a data request command from the host device to the type of input/output device signaled by the first command interpreter as a data transfer command for initiating a transfer of the digital data to the host device.

In the context of the claims and the specification, the “/” in “data transmit/receive device” can be readily understood as meaning “and/or.” For example, above-quoted Claim 1 of the ’399 Patent specifically refers to the “data transmit/receive device” as “being arranged for *providing* analog data” but does not recite that the device must also *receive* data.

As to whether the “data transmit/receive device” must be able to “communicate actively with the host device,” this is disclosed as a specific feature of a particular embodiment “according to the present invention” and should not limit the disputed term (unless so limited by other claim language). ’399 Patent at 5:47–63; *see Phillips*, 415 F.3d at 1323.

Finally, as to whether this term should be construed to require “analog” data, Defendants’ reliance upon the Titles of the patents and upon surrounding claim language is unavailing. In some instances the claims expressly recite analog limitations, but Defendants have not demonstrated any

definition or disclaimer that would warrant requiring analog data where the claims recite no such limitation. *See, e.g.*, '399 Patent at 10:27–32 (cited by Defendants at the January 5, 2017 hearing). Indeed, to whatever extent Defendants are relying upon other claim language as requiring analog data, any such limitation is set forth by that other claim language and should not be incorporated into the construction of “data transmit/receive device.”

The Court therefore hereby construes “**data transmit/receive device**” as used in the '399 Patent, claims 1, 3, 6, 11 and 14, the '449 Patent, claims 1, 2, 5 and 16–17, the '746 Patent, claim 7 and the '144 Patent, claims 17 and 19, to mean “**data transmit and/or receive device**.”

9. “simulating a virtual file system to the host”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“emulating a file system, including a directory structure, such that the host device use [<i>sic</i> , can use] its native driver to access data even if the data is not actually on a device for which the native driver was designed” ⁷	“presenting to the host device a file system that emulates the file system of the storage device customary in the host device, even though the emulated file system does not exist on the interface device” ⁸

Dkt. No. 151, Ex. A at 8; Dkt. No. 175 at 31–32; Dkt. No. 185 at 33; Dkt. No. 197, Ex. A at 117.

Plaintiff argues that its proposed construction is consistent with the specification and the *Papst Opinion*. Dkt. No. 175 at 32.

Defendants respond that Plaintiff’s proposal “introduces the unsupported term ‘native driver’ and fails to address that the ‘virtual file system’ must be simulated.” Dkt. No. 185 at 34.

⁷ Plaintiff previously proposed: “representing one or more data sets as if they are stored on a customary device.” Dkt. No. 151, Ex. A at 8.

⁸ Defendants previously proposed: “imitating a file system that can be referenced by the host device, but such file system does not exist on either the host device or the interface device.” Dkt. No. 151, Ex. A at 8.

Plaintiff replies that “Defendants argue that ‘simulating’ means the file system must not exist on the interface device, but the specification supports that it may.” Dkt. No. 191 at 10 (citing ’449 Patent at 5:38–45).

In the *Papst MDL*, the parties submitted an agreement that this term means “emulating a file system, such that the host device can use its native driver to access data even if the data is not actually on a device for which the native driver was designed.” *Papst MDL*, Dkt. No. 651, Dec. 8, 2016 Joint Notice. No such agreement has been reached in the above-captioned case, as to “native driver” or otherwise.

Although the parties in the *Papst MDL* agreed upon a construction that includes the phrase “native driver” (*id.*), Plaintiff has not sufficiently supported its proposal of “native driver” in the above-captioned case, and introducing the phrase “native driver” would tend to confuse rather than clarify the scope of the claims. Further, Plaintiff’s proposal of using such a driver “to access data even if the data is not actually on a device for which the native driver was designed” is not sufficiently tethered to this disputed term, which requires “simulating a virtual file system.”

Instead, what makes the file system “virtual” and “simulat[ed]” is that the file system does not actually exist (other than in “simulat[ed]” form). *See* ’399 Patent at 5:19–47; *see also id.* at 12:30–31 (“simulation of a freely definable file structure on the ‘virtual’ hard disk”). This is consistent with the *Papst Opinion*, in which the Federal Circuit noted that “[v]irtual’ conveys some kind of *as if* action, one thing emulating another; the term was prominently used that way in the computer field at the time of the inventions here.” *Papst Opinion* at 1268.

The Court therefore hereby construes “**simulating a virtual file system to the host**” as used in the ’449 Patent, claims 1 and 17, to mean “**presenting to the host device a file system**

that emulates the file system of the storage device customary in the host device, even though the emulated file system does not actually exist on the interface device.”

10. “user-loaded” Terms

“user-loaded file transfer enabling software” (’144 Patent, Claims 1, 86; ’746 Patent, Claims 1, 31, 34; ’437 Patent, Claim 1)	
Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary other than other constructions offered. ⁹	“specific drivers or software for the [analog data acquisition device or the interface of the analog data acquisition device] / [ADGPD or the i/o port] beyond that provided in or with the operating system or BIOS”
“whereby there is no requirement for any user-loaded file transfer enabling software to be loaded on or installed in the computer in addition to the operating system” (’746 Patent, Claim 1)	
“without requiring any end user to load any software onto the computer at any time” (’746 Patent, Claim 17; ’144 Patent, Claims 1, 84)	
“without requiring any user-loaded file transfer enabling software to be loaded on or installed in the computer” (’746 Patent, Claims 31, 34; ’144 Patent, Claims 1, 86; ’437 Patent, Claims 1, 43)	
Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“without requiring the end user to install or load specific drivers or software for the [ADGPD/analog data acquisition device/analog data acquisition and interface device] beyond that included in the operating system or BIOS”	No construction necessary beyond the proposed construction identified above.

⁹ Plaintiff previously proposed: “without requiring the end user to install or load specific drivers or software for the [ADGPD/analog data acquisition device/analog data acquisition and interface device] beyond that included in the operating system or BIOS.” Dkt. No. 151, Ex. A at 8.

“(a) without requiring any end user to load any software onto the computer at any time and (b) without requiring any end user to interact with the computer to set up a file system in the ADGPD at any time, wherein the at least one parameter is consistent with the ADGPD being responsive to commands issued from a customary device driver”
 (’144 Patent, Claim 1; ’437 Patent, Claim 1)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“without requiring the end user to install or load specific drivers or software for the [ADGPD/analog data acquisition device/analog data acquisition and interface device] beyond that included in the operating system or BIOS and (b) without requiring any end user to interact with the computer to set up a file system in the ADGPD at any time,[] wherein the at least one parameter is consistent with the ADGPD being responsive to commands issued from a customary device driver” ¹⁰	No construction necessary apart from other proposed constructions.

“without requiring the user to load the device driver”
 (’437 Patent, Claim 43)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“without requiring the end user to install or load specific drivers or software for the [ADGPD/analog data acquisition device/analog data acquisition and interface device] beyond that included in the operating system or BIOS” ¹¹	No construction necessary apart from other proposed constructions.

¹⁰ Plaintiff previously proposed: “without requiring the end user to install or load specific drivers or software for the [ADGPD/analog data acquisition device/analog data acquisition and interface device] beyond that included in the operating system or BIOS, wherein the at least one parameter is consistent with the ADGPD being responsive to commands issued from a customary device driver.” Dkt. No. 151, Ex. A at 9; Dkt. No. 175 at 33.

¹¹ Plaintiff previously proposed: “without requiring the end user to install or load a customary device driver beyond that included in the operating system of [*sic*, or] BIOS.” Dkt. No. 151, Ex. A at 9.

“without requiring any user-loaded file transfer enabling software to be loaded on or installed in the host device”
(’746 Patent, Claim 34)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“without requiring the end user to install or load specific drivers or software for the [ADGPD/analog data acquisition device/analog data acquisition and interface device] beyond that included in the operating system or BIOS”	No construction necessary apart from other proposed constructions.

“without requiring any end user to load any software onto the first computer at any time”
(’144 Patent, Claim 86)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“without requiring the end user to install or load specific drivers or software for the [ADGPD/analog data acquisition device/analog data acquisition and interface device] beyond that included in the operating system or BIOS”	No construction necessary apart from other proposed constructions.

“without requiring any end user to load any software onto the second computer at any time”
(’144 Patent, Claim 86)

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
“without requiring the end user to install or load specific drivers or software for the [ADGPD/analog data acquisition device/analog data acquisition and interface device] beyond that included in the operating system or BIOS”	No construction necessary apart from other proposed constructions.

Dkt. No. 151, Ex. A at 8–10; Dkt. No. 175 at 32–34; Dkt. No. 185 at 38; Dkt. No. 197, Ex. A at 122, 131, 133, 135, 143–44, 146–148 & 151.

Plaintiff argues that “[t]hese terms capture one of the central concepts of the ’746 and ’144 patents—that an end user need not install or load any software onto the computer or host device to connect to the interface device.” Dkt. No. 175 at 34. Nonetheless, Plaintiff urges, “[Plaintiff’s] construction clarifies that these claim limitations do not preclude pre-installed, host computer software packages that the invention leverages to implement the inventive concept, *i.e.*, BIOS (Basic Input/Output System) and operating system software.” *Id.*

Defendants respond, as to “user-loaded file transfer enabling software”: “There is nothing in the claims, specification or file history that restricts file transfer enabling software from being provided ‘with’ (as opposed to ‘in’) an operating system or the BIOS. Both options are available.” Dkt. No. 185 at 38. As to the remaining “user-loaded” terms, Defendants respond that “no further construction is necessary as the surrounding plain language by itself is clear that user does not have to load any software.” *Id.* at 39.

In reply, Plaintiff refers to its opening arguments. Dkt. No. 191 at 10 n.49.

The parties appear to dispute whether these “without requiring” limitations preclude “pre-loaded” software, such as software loaded at a factory prior to a computer device being sold. These limitations preclude requiring “user-loaded” software and thus, on their face, preclude requiring a *user* to load any software (other than an operating system, which is necessary for the computer device to operate, *see* Dkt. No. 175, Ex. 8, Nov. 21, 2016 Fernald Decl. at ¶¶ 81–83).

The Court therefore hereby construes “**user-loaded**” and “**user to load**” to mean “**loaded by a user other than as necessary to load or maintain an operating system.**”¹²

¹² At the January 5, 2017 hearing, Defendants endorsed construing “user-loaded” as meaning “loaded by a user other than as necessary to load or maintain the operating system,” which the Court had preliminarily proposed. Docket No. 220 at 114:14–16.

11. “input/output (i/o) port”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“the physical components necessary to make a connection” ¹³

Dkt. No. 151, Ex. A at 10; Dkt. No. 175 at 35; Dkt. No. 185 at 39; Dkt. No. 197, Ex. A at 154.

Plaintiff argues that no construction is necessary because “[t]he terms ‘port’ and ‘i/o port’ were widely and broadly used in the art at the time of the invention.” Dkt. No. 175 at 35. As to Defendants’ proposed construction, Plaintiff argues that in the context of the “enhanced parallel port” discussed in the specification, for example, “the port includes the components that permit attachment to a printer interface, but it is not the connection itself.” *Id.* at 36.

Defendants respond that “in the context of the asserted claims, the components are physical.” Dkt. No. 185 at 39.

In reply, Plaintiff refers to its opening arguments. Dkt. No. 191 at 10 n.49.

Claim 1 of the ’144 Patent, for example, includes a recital of “when the i/o port is operatively interfaced with a multi-purpose interface of a computer.” The context in which “i/o port” is used in the claims, particularly when read in light of the specification, thus demonstrates that an “i/o port” is physical. *See, e.g.,* ’399 Patent at 4:42–44 (“a multi-purpose interface of the host device which can be implemented, for example, as an SCSI interface or as an enhanced printer interface”), 9:32 (“50-pin SCSI connector”) & 9:38 (“EPP (enhanced parallel port”). Likewise, extrinsic evidence confirms that the term “port” has been understood in the relevant context as referring to a physical interface. *See* Dkt. No. 175, Ex. 8B, C and the 8051 22–23 (1998).

¹³ Defendants previously proposed: “physical connection to a host computer.” Dkt. No. 151, Ex. A at 10.

The Court therefore hereby construes “**input/output (i/o) port**” as used in the ’144 Patent, claims 1–2, 15–16, 56–57 and 86 and in the ’437 Patent, claim 1 to mean “**the physical components necessary to make a connection.**”

12. “analog signal acquisition channel[s],” “acquisition channels,” and “analog acquisition channel”

Plaintiff’s Proposed Construction	Defendants’ Proposed Construction
No construction necessary apart from the other proposed constructions, if any.	“distinct analog signal input[s] each separately connected to the [analog data acquisition device] [data acquisition device] [ADGPD] [analog data device] and to signal processing circuitry”

Dkt. No. 151, Ex. A at 10; Dkt. No. 175 at 36; Dkt. No. 185 at 40; Dkt. No. 197, Ex. A at 159.

Plaintiff submits that “[t]he term ‘channel’ was used in the art at the time of the invention to refer to ‘a path along which signals can be sent.’” Dkt. No. 175 at 36–37 (quoting *id.*, Ex. 8C, *The New IEEE Standard Dictionary of Electrical and Electronics Terms* 174 (5th ed. 1993)). Plaintiff concludes that “[a] person of ordinary skill in the art would understand the ordinary meaning of the ‘analog acquisition channel’ terms to include paths along which analog signals can be acquired and that a channel can generally send multiple signals through a common path (the definition uses ‘signals’ rather than ‘signal’).” *Id.* at 37 (citation omitted).

Defendants respond that “[t]he plain language of the claims and the specification confirm that each ‘channel’ is a distinct analog signal input with separate connections.” Dkt. No. 185 at 40.

Plaintiff replies that “[a]t the time of the invention, ‘channel’ referred to ‘a path along which signals can be sent,’ which is both singular and plural.” Dkt. No. 191 at 10 n.49.

Defendants have argued that “each channel is a distinct analog input with a *separate connection.*” Dkt. No. 185 at 40 (emphasis added). This is a specific feature of particular embodiments that should not be imported into the claims. *See Phillips*, 415 F.3d at 1323. Instead,

Plaintiff has submitted evidence that “channel” has been understood in the context of computers to mean “a path along which signals can be sent.” Dkt. No. 175, Ex. 8C, *The New IEEE Standard Dictionary of Electrical and Electronics Terms* 174 (5th ed. 1993).

Analogously, the *Papst Opinion* found that “the term ‘interface device’ is not limited to a ‘stand-alone device’ in the district court’s sense relied on for summary judgment: a device that is physically separate and apart from, and not permanently attached to, a data device (or a host computer).” *Papst Opinion* at 1262 (emphasis added).

At the January 5, 2017 hearing, Defendants endorsed the Court’s preliminary construction, which was “a path along which analog signals can be acquired,” except that Defendants proposed modifying the construction by replacing “a path” with “a path or paths” so as to account for plural as well as singular recitations in the claims. Docket No. 220 at 119:3–14. Plaintiff responded that the channels are not necessarily analog, depending upon the particular claim language. *Id.* at 119:20–24.

On balance, to the extent that Defendants are relying upon recitals of the word “analog” as support for requiring that the channels are for “analog” signals, any such analog limitations are expressly recited and should not be imported into the meaning of “channel.”

The Court therefore hereby construes the disputed terms as set forth in the following chart:

<u>Term</u>	<u>Construction</u>
“analog signal acquisition channel” (’746 Pat., Cl. 1)	“a path along which analog signals can be acquired”
“analog signal acquisition channels” (’746 Pat., Cl. 10)	“paths along which analog signals can be acquired”
“acquisition channels” (’746 Pat., Cl. 35)	“paths along which signals can be acquired”
“analog acquisition channel” (’437 Pat., Cls. 1, 14, 43)	“a path along which analog signals can be acquired”
“analog acquisition channels” (’437 Pat., Cls. 1, 13–14, 18, 43, 45)	“paths along which analog signals can be acquired”

SIGNED this 7th day of March, 2017.

Robert W. Schroeder III
 ROBERT W. SCHROEDER III
 UNITED STATES DISTRICT JUDGE

APPENDIX A: COLLECTED CONSTRUCTIONS

Claim Term	Court's Construction
“a first connecting device for interfacing the host device with the interface device via the multi-purpose interface of the host device” (’399 Pat., Cls. 1, 11; ’449 Pat., Cls. 1, 17)	“a first electrical component, or group of electrical components, for interfacing the interface device with the host device”
“interfacing of the host device with a first connecting device of the interface device via the multi-purpose interface of the host device” (’399 Pat., Cl. 14)	
“a second connecting device for interfacing the interface device with the data transmit/receive device” (’399 Pat., Cls. 1, 11; ’449 Pat., Cls. 1, 17)	“a second electrical component, or group of electrical components, for interfacing the interface device with the host device”
“interfacing of the data transmit/receive device with a second connecting device of the interface device” (’399 Pat., Cl. 14)	
“first command interpreter” (’399 Pat., Cls. 1, 11)	“a first program that receives a command and executes some function based on that command”
“second command interpreter” (’399 Pat., Cls. 1, 11)	“a second program that receives a command and executes some function based on that command”
“multi-purpose interface” (All Claims)	Plain meaning

<p>“sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is an input/output device customary in a host device”</p> <p>(’399 Pat., Cls. 1, 11)</p>	Plain meaning
<p>“sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device, to the host device which signals to the host device that it is a storage device customary in a host device”</p> <p>(’449 Pat., Cls. 1, 17)</p>	Plain meaning
<p>“at least one parameter indicative of the class of devices to be sent to the computer through the multipurpose interface of the computer, independent of the analog source, wherein the analog data acquisition device is not within the class of devices”</p> <p>(’746 Pat., Cl. 1)</p>	Plain meaning
<p>“the at least one parameter”</p> <p>(’746 Pat., Cls. 15, 17, 34; ’144 Pat., Cls. 1, 27–29, 31, 34–35, 61, 84, 86–87; ’437 Pat., Cls. 1, 22, 25)</p>	Plain meaning
<p>“an identification parameter”</p> <p>(’437 Pat., Cl. 43)</p>	Plain meaning
<p>“at least one parameter identifying the analog data acquisition device as a digital mass storage device, instead of as an analog data acquisition device and regardless of the analog source”</p> <p>(’746 Pat., Cl. 31)</p>	Plain meaning

“at least one parameter which provides identification information regarding the ADGPD” (’144 Pat., Cl. 1)	Plain meaning
“wherein the at least one parameter provides identification information regarding the ADGPD” (’144 Pat., Cl. 86)	Plain meaning
“responding to the inquiry from the host device by the interface device in such a way that it is an input/output device customary in a host device” (’399 Pat., Cl. 14)	Plain meaning
“the driver for the [input/output] [storage] device customary in a host device” (’399 Pat., Cls. 1, 11; ’449 Pat., Cl. 1)	“the driver for the [input/output] [storage] device normally part of commercially available computer systems at the time of the invention”
“the usual driver for the [input/output] [storage] device” (’399 Pat., Cl. 14)	“the driver for the [input/output] [storage] device normally part of commercially available computer systems at the time of the invention”
“whereupon the host device communicates with the interface device by means of the driver for the input/output device customary in a host device” (’399 Pat., Cl. 1)	“whereupon the host device communicates with the interface device by means of the driver for the input/output device normally part of commercially available computer systems at the time of the invention”
“customary driver” (’144 Pat., Cls. 1, 81–82, 86)	“driver for a device normally part of commercially available computer systems at the time of the invention”
“a [storage] [input/output] device customary in a host device” (’399 Pat., Cls. 1, 11, 14; ’449 Pat., Cls. 1, 17; ’144 Pat., Cls. 81, 83)	“[storage] [input/output] device normally part of commercially available computer systems at the time of the invention”

“automatic” / “automatically” (’144 Pat., Cls. 1, 61–63, 78–79, 86; ’437 Pat., Cls. 1, 43; ’746 Pat., Cls. 1, 17, 31, 34)	“without user intervention”
“automatic [] transfer” (’437 Pat., Cl. 1)	No separate construction necessary
“automatically transfer” (’746 Pat., Cls. 31, 34)	No separate construction necessary
“automatic file transfer process” (’144 Pat., Cls. 1, 79, 86; ’437 Pat., Cl. 1)	No separate construction necessary
“automatically transferring data from the analog source to the host device in response to a digital data read command from the host device” (’746 Pat., Cl. 34)	No separate construction necessary
“automatic recognition process” (’144 Pat., Cls. 1, 61–63, 78, 86; ’437 Pat., Cl. 1)	No separate construction necessary
“data transmit/receive device” (’399 Pat., Cls. 1, 3, 6, 11, 14; ’449 Pat., Cls. 1–2, 5, 16–17; ’746 Pat., Cl. 7; ’144 Pat., Cls. 17, 19)	“data transmit and/or receive device”
“simulating a virtual file system to the host” (’449 Pat., Cls. 1, 17)	“presenting to the host device a file system that emulates the file system of the storage device customary in the host device, even though the emulated file system does not actually exist on the interface device”

<p>“user-loaded file transfer enabling software” (’144 Pat., Cls. 1, 86; ’746 Pat., Cls. 1, 31, 34; ’437 Pat., Cl. 1)</p> <p>“whereby there is no requirement for any user-loaded file transfer enabling software to be loaded on or installed in the computer in addition to the operating system” (’746 Pat., Cl. 1)</p> <p>“without requiring any end user to load any software onto the computer at any time” (’746 Pat., Cl. 17; ’144 Pat., Cls. 1, 84)</p> <p>“without requiring any user-loaded file transfer enabling software to be loaded on or installed in the computer” (’746 Pat., Cls. 31, 34; ’144 Pat., Cls. 1, 86; ’437 Pat., Cls. 1, 43)</p> <p>“(a) without requiring any end user to load any software onto the computer at any time and (b) without requiring any end user to interact with the computer to set up a file system in the ADGPD at any time, wherein the at least one parameter is consistent with the ADGPD being responsive to commands issued from a customary device driver” (’144 Pat., Cl. 1; ’437 Pat., Cl. 1)</p> <p>“without requiring the user to load the device driver” (’437 Pat., Cl. 43)</p> <p>“without requiring any user-loaded file transfer enabling software to be loaded on or installed in the host device” (’746 Pat., Cl. 34)</p> <p>“without requiring any end user to load any software onto the first computer at any time” (’144 Pat., Cl. 86)</p> <p>“without requiring any end user to load any software onto the second computer at any time” (’144 Pat., Cl. 86)</p>	<p>“user-loaded” and “user to load”: “loaded by a user other than as necessary to load or maintain an operating system”</p>
<p>“input/output (i/o) port” (’144 Pat., Cls. 1–2, 15–16, 56–57, 86; ’437 Pat., Cl. 1)</p>	<p>“the physical components necessary to make a connection”</p>

“analog signal acquisition channel” (’746 Pat., Cl. 1)	“a path along which analog signals can be acquired”
“analog signal acquisition channels” (’746 Pat., Cls. 10)	“paths along which analog signals can be acquired”
“acquisition channels” (’746 Pat., Cl. 35)	“paths along which signals can be acquired”
“analog acquisition channel” (’437 Pat., Cls. 1, 14, 43)	“a path along which analog signals can be acquired”
“analog acquisition channels” (’437 Pat., Cls. 1, 13–14, 18, 43, 45)	“paths along which analog signals can be acquired”